

10/076,135 filed 02/14/2002
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Reply to Office Action of 09/30/2005

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method for applying an electrical current through a fluid containing cavity, comprising:
providing a fluid containing cavity;
contacting at least first and second electrodes with the fluid in the fluid containing cavity, the first and second electrodes patterned on a first surface of the fluid containing cavity, the first electrode disposed in a first portion of the fluid containing cavity that is separated from the second electrode by a second portion of the fluid containing cavity, the first portion being wider than the second portion of the fluid containing cavity, the first electrode having a relevant surface area in contact with the fluid in the fluid containing cavity and the second electrode having a second relevant surface area in contact with the fluid in the fluid containing cavity, the first edge of the first electrode facing the second electrode along a path of the electrical current and configured to provide substantially uniform current distribution across the first edge;
applying an ~~alternating voltage of greater than about 100 V_{RMS}~~ current to the fluid in the fluid containing cavity through the first and second electrodes at a first frequency; and
wherein the first frequency and the relevant surface area ~~is~~ are selected to avoid generation of gas bubbles at either of the first and second electrodes.
2. (original) The method of claim 1, wherein the first frequency is greater than 1 KHz.
3. (original) The method of claim 1, wherein the first frequency is greater than 5 KHz.
- 4-6 (canceled)

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7. (currently amended) The method of claim ~~6~~ 1, wherein the first edge is curved to provide substantially uniform electrical resistance between ~~substantially~~ of the first edge of the first electrode and the second electrode.

8. (original) The method of claim 1, wherein the first and second electrodes are disposed on opposing surfaces of the fluid containing cavity, the relevant surface of the first electrode being disposed in substantially directly facing opposition to the relevant surface of the second electrode.

9. (original) The method of claim 8, wherein the relevant surface area of the first electrode and the relevant surface area of the second electrode are between 2 and 100 μm apart along a path of current flow.

10. (original) The method of claim 9, wherein the relevant surface area of the first electrode and the relevant surface area of the second electrode are between 10 and 50 μm apart along the path of current flow.

11. (original) The method of claim 9, wherein the relevant surface area of the first electrode and the relevant surface area of the second electrode are between 10 and 25 μm apart along the path of current flow.

12. (canceled)

13. (currently amended) A method for applying electrical current through a fluid containing cavity, comprising:

providing a fluid containing cavity;

placing first, second and third electrodes in electrical contact with a fluid in the fluid containing cavity at first, second and third different points, respectively, the second point being disposed between the first point and the third point; and

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simultaneously applying a first ~~voltage-current~~ between the first electrode and the second electrode and applying a second ~~voltage-current~~ between the second electrode and the third electrode ~~wherein each of the first and second voltages are greater than about 100 V_{RMS}~~;

wherein at least one of the first, second and third electrodes is in electrical contact with the fluid containing cavity via a fluid filled channel that is in fluid communication with the fluid filled cavity, the at least one of the first, second and third electrodes being disposed in contact with fluid in the fluid filled channel.

14. (original) The method of claim 13, wherein voltages applied at each of the first, second and thirds electrodes is maintained below 1000V.

15. (original) The method of claim 13, wherein resistance between the first and second electrodes and between the second and third electrodes is maintained below 100 ohms.

16. (original) The method of claim 13, wherein resistance between the first and second electrodes and between the second and third electrodes is maintained below 75 ohms.

17. (original) The method of claim 13, wherein the first and second electrodes and second and third electrodes are between about 5 μ m and 20 mm apart along a path of current flow within the fluid containing cavity.

18. (original) The method of claim 17, wherein the first and second electrodes and second and third electrodes are less than 10 mm apart along a path of current flow within the fluid containing cavity.

19. (original) The method of claim 17, wherein the first and second electrodes and second and third electrodes are less than 5 mm apart along a path of current flow within the fluid containing cavity.

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20. (original) The method of claim 13, wherein the first and second currents comprise alternating current.

21-32 (canceled)